

THE UNITED STRATES OF AMIERICAL

TO ALL TO WHOM THESE PRESENTS SHALL COME: Minnesota Agricultural Experiment Station

Talkereas, there has been presented to the

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, therefore, this certificate of plant variety protection is to grant UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLI-CANT(S) FOR THE TERM OF YEARS FROM THE DATE OF THIS GRANT, SUBJECT eighteen TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EX-LUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, PORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. NITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

*[Waived]

SPRING OATS

'Benson'

In Testimony Minercot, I have hexeunto set my hand and caused the seal of the Elaut Variety Protection Office to be affixed at the City of Washington

this 17th day of June in the year of our Lord one thousand nine hundred and eighty-two.

Plant Variety Protection Office

Agricultural Marketing Service

UNITED STATES DEPARTMEI AGRICULTURAL MARK LIVESTOCK, POULTRY, GRA	FORM APPROVED OMB NO. 40-R3822 No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).			
APPLICATION FOR PLANT VARIE INSTRUCTIONS: See Reverse.				
1a. TEMPORARY DESIGNATION OF VARIETY	1b. VARIETY NAME	FOR OFFICE	AL USE ONLY	
Mn 71211	Benson	PV NUMBER	1000055	
2. KIND NAME	3. GENUS AND SPECIES NAME	FILING DATE 2/15/80	TIME A.M. 4:00 P.M.	
Spring oats	Avena sativa	FEE RECEIVED	DATE	
4. FAMILY NAME (BOTANICAL)	5. DATE OF DETERMINATION release	\$ 500.00	2/15/80	
Gramineae	December 20,1976 \$9124/8(February 15, 1979	\$ 250.00	4/27/82	
6. NAME OF APPLICANT(S)	7. ADDRESS (Street and No. or R.F.D. No.,	City, State, and ZIP	8. TELEPHONE AREA	
Minnesota Agricultural	Code) University of Minnesota,	220 Coffeu Hall	CODE AND NUMBER	
Experiment Station	1420 Eckles Avenue, St. P		612/373-0751	
 IF THE NAMED APPLICANT IS NOT A PE ORGANIZATION: (Corporation, partnersh 	ip, association, etc.) DATE OF INCOR	ED, GIVE STATE AND PORATION	11. DATE OF INCOR- PORATION	
Agricultural Experiment Star				
12. NAME AND MAILING ADDRESS OF APP ALL PAPERS:	LICANT REPRESENTATIVE(S), IF ANY, TO	SERVE IN THIS APPLIC	ATION AND RECEIVE	
D. D. Stuthman, Department	_ :	enue, Universit	y of	
Minnesota, St. Paul, Mi 13. CHECK BOX BELOW FOR EACH ATTACH	N. 55108 IMENT SUBMITTED:	· · · · · · · · · · · · · · · · · · ·		
X 13A, Exhibit A, Origin and Bree	eding History of the Variety (See Section .	52 of the Plant Variet	v Protection Act.)	
X 13B. Exhibit B, Novelty Statem		· · · · · · · · · · · · · · · · · · ·	,	
		Di cretto D		
· ·	iption of the Variety (Request form from	Plant Variety Protect	ion Office.)	
13D. Exhibit D, Additional Des	cription of the Variety.			
14a. DOES THE APPLICANT(S) SPECIFY THA SEED? (See Section 83(a). (If "Yes," answer		RIETY NAME ONLY AS	A CLASS OF CERTIFIED	
14b. DOES THE APPLICANT(S) SPECIFY THA LIMITED AS TO NUMBER OF GENERATI		BREEDER SEED?	ATIONS OF PRODUC-	
₹X:YES	FOUNDATION	X REGISTERED	CERTIFIED	
15a. DID THE APPLICANT(S) FILE FOR PROT name of countries and dates,)	ECTION OF THIS VARIETY IN OTHER COU	NTRIES? YES	NO (If "Yes," give	
	e la lengua glassia ang makanilatan ay matata sakan. Na matatan	to de la companya de La companya de la co		
15b. HAVE RIGHTS BEEN GRANTED THIS VA and dates.)	RIETY IN OTHER COUNTRIES? YES	X NO (If "Yes,"	give name of countries	
16. DOES THE APPLICANT(S) AGREE TO TH JOURNAL? X YES	E PUBLICATION OF HIS/HER (THEIR) NAM	IE(S) AND ADDRESS IN	THE OFFICIAL	
17. The applicant(s) declare(s) that a viable	e sample of basic seed of this variety will le with such regulations as may be applical	be furnished with the cole.	application and will be	
The undersigned applicant(s) is (are) the variety is distinct, uniform, and stable 42 of the Plant Variety Act.	ne owner(s) of this sexually reproduced no as required in Section 41, and is entitled t	ovel plant variety, and to protection under th	believe(s) that the e provisions of Section	
Applicant(s) is (are) informed that false	e representation herein can jeopardize pro	otection and result in	Sensities.	
/ /(DATE)		SIGNATURE OF APPLI	CANT)	

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

- Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.
- Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties:

 (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.
- If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)
- See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

100/h
08/51/E

13A. Exhibit A

Pedigree Portage/Burnett

The cross 'Portage'/'Burnett' was made in 1964 under the direction of Dr. R. A. Kleese. From F_2 to F_5 , the progeny was advanced via Single Seed Descent using both field and off-season greenhouse nurseries. The entire F_5 plant was harvested and an F_6 plant row grown in the field in the summer of 1966. The F_7 generation ended up being only seed increase because of a hail storm. In 1968 and 1969 the progeny were evaluated in replicated hill (micro) plots at St. Paul and Morris, Minnesota, respectively. The F_{10} generation (1970) was the first to be evaluated in a replicated multiple row plot, single location nursery. In 1971 and 1972 Benson was evaluated in a replicated multiple row, multiple location nursery. In 1973, state wide testing was initiated and in 1974 regional (Uniform Midseason Oat Performance Nursery) was begun. In 1974 Benson was also entered into the IORN (International Oat Rust Nursery).

Benson appeared stable and uniform during our seed increase program.

No offtypes are evident. And continues to do so during course of production as

2/09/82

Exhibit A. During early generations, $F_2 - F_7$, there was no intentional selection within the population that produced Benson. Specifically, the meaning of Single Seed Descent is that every seed or plant is treated equally with respect to the next generation. Starting in 1968, i.e., F_8 , the principal selection criteria was grain yield with some consideration for seed quality, principally appearance. In 1970, lodging resistance and disease resistance, especially crown rust reaction, and test weight were also rated.

0ats

Benson

13B Exhibit B Novelty Statement

Appearance-wise, Benson does not look like any of the cultivars currently grown in the upper midwest. Commonly used cultivars which are most similar to Benson in performance, especially heading, include Noble, Lyon, Ogle, Chief, Lancer, and Stout. Of these Benson, Lyon and Noble are resistant to smut when inoculated with a bulk of smut collected from Minnesota commercial field and nursery plots. The others are very susceptible. Benson can be distinguished from Noble on the basis of hull color. Referring to the Munsel Book of Color the hull colors are:

Noble Hue 2.5y 6/18 Benson Hue 2.5y 8/4

Benson can be most easily distinguished from Lyon on height as it usually is four or more inches shorter.

(Oat)

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE GRAIN DIVISION HYATTSVILLE, MARYLAND 20782

OBJECTIVE DESCRIPTION OF VARIETY

and the second s	(Avena spp.)	entre de la companya de la companya La companya de la co
NAME OF APPLICANT(S)	entre de la companya	VARIETY NAME OR TEMPORARY DESIGNATION
Minnesota Agricultural Experim	ent Station	Benson - Mn 71211
ADDRESS (Street and No., or R.F.D. No., City, State, and University of Minnesota, 220 Ct 1420 Eckles Avenue		FOR OFFICIAL USE ONLY PVPO NUMBER 800055
St. Paul, MN 55108	AND	000000
Place the appropriate number that describes the varietal ch Place a zero in first box (e.g. 0 8 9 or 0 9)		
1. SPECIES:		
1 = SATIVA 2 = BYZANTINA	3 = OTHER (Specify)	
2. GROWTH HABIT:		
3 1 = WINTER 2 = SEMIWINTER	3 = SPRING	Company of the Compan
3 JUVENILE GROWTH: 1 = PROSTRATE	2 = SEMIPROSTRATE	3 = ERECT
	STANDARD'VARIETIES	And the second s
1 = JAYCEE 2 = CLINTLAND 64 3	= CAYUSE 4 = NORLII	NE 5 = YANCEY 6 = FLORIDA 501
3. MATURITY (50% flowering): 2.5 DAYS EARLIER THAN Logi STAND	ARD VARIETY D	AYS LATER THANSTANDARD VARIETY
3 Season: 1 = VERY EARLY (Jaycee) 4 = LATE (Lodi)	2 = EARLY (Nodaway 70) 5 = VERY LATE (Garry)	3 = MIDSEASON (Clintford) 6 = EXTREMELY LATE (Mackinaw)
4. PLANT HEIGHT (From soil level to top of head):	and the second	
9 3 CM. TALL	1 1 cm. st	HORTER THAN . LO di STANDARD VARIETY
 Assembly to the control of the control	СМ. ТА	ALLER THAN STANDARD VARIETY
5. STEM:		
DIAMETER: 1 = FINE (Kherson)	2 = MEDIUM (Clintford)	3 = COARSE (Nodaway 70)
HAIRINESS AT UPPER CULM NODES:	1 = HAIRLESS	2 = HAIRY
MATURE STEM COLOR:	1 = YELLOW	2 = REDDISH
- · · · · · · · · · · · · · · · · · · ·	1. 49	be used to determine the leaf color of the described variety.)
1 = DROOPING (Ran	· · · · · · · · · · · · · · · · · · ·	
2 COLOR: 1 = YELLOW GREEN	2 = LT. GREEN	
1 1 MM, WIDTH (First leaf below flag leaf)	LEAF WAI	GIN:1-= GLABROUS
2 LIGULE: 1 = ABSENT 2 = PRESE	NT I LEAF SHE	ATH: 11 = HAIRLESS 2 = HAIRY
	Anna Carlos Carl	and any anti-property for the property of the first of the second of the second of the second of the second of The second of the second of
PANICLE SHAPE: 1 = EQUILATERAL	2 = INTERMEDIATE	3 = SIDE PANICLE (Unilateral)
1 ATTACHMENT OF LOWER WHORL OF BRAN	CHES: 1 = FIRST NODE	2 = SECOND NODE (False node)
PANICLE SIZE: 1 = SMALL (Yancey)	2 = MEDIUM (Walken)	a e a se entabrea 3 = LARGE (Markton)
PANICLE WIDTH: 1 = NARROW (Gophe	er) 2 = MIDBROAD (Yancey)	3 = BROAD (Nodaway 70)
CM. PANICLE LENGTH 16 1 20 NU	MBER OF BRANCHES	5 NUMBER OF WHORLS OF BRANCHES
2 POSITION OF BRANCHES: 1 = ASCENDIN 4 = PECTINAT	IG (Yancey) 2 = SPREADING (E (White Tartar) 5 = CONFUSED (S	Cayuse) 3 = DROOPING (Markton)

8. RACHIS:		Æ 9	124181			
1 = RECURVED (Yancey)	2 = ERECT (Walken)	"	The second secon	CHILLA SEGMENT LENGTH		
SECOND FLORET RACHILL	A SEGMENT: 1 = HAIRLESS 2 = HAIRY	RACH	ILLA HAIRS: 1 =	SHORT 2 = LONG		
9. SPIKELET:			电压线 医光点点	9.		
2 SPIKELET SEPARATION BY		= SEMIABSCISS	:	FRACTURE		
Rachilla 2 FLORET SEPARATION BY:	short wide	long nai	CTURE 3=	BASIFRACTURE		
FLORETS PER SPIKELE	181	- 1 (m) - 1 (m	20 A A W	•		
FLOREIS FER SPIKELE	r (mean no.)					
10. GLUMES: (Glume Color: The Roya	Horticultural Society's or any recogniz	ed color chart sh	ould be used to determ			
MM. WIDTH		O. OF VEINS ON		OLOR: 3 = RED 4 = STRIPED		
11. LEMMA: (Lemma Color: The Royal						
MM. LENGTH			= WHITE 2 = YELL			
HAIRINESS OF DORSAL SU	2 = HAIRY	alterior - 4	= GRAY 5 = BLAC	K 0 - Cleum		
12. AWN (First floret):	<u> Andrews (1985) (1987) (1986)</u>	<u>kan kan kan banatan ban</u> K	<u> </u>	<u> </u>		
OCCURENCE: 1.=ABSE	1	TYPE:	1 = NON-TWISTED			
2 = INFRI	EQUENT (Yancey)	MM A	3 = TWISTED GENI WN LENGTH	COLATE		
4 = FREQ	UENT (Random)					
13, SEED:				•		
1 FLORESCENCE UNDER ULT	RAVIOLET LIGHT:	= FLORESCENT	2 =	NON-FLORESCENT		
The second secon		≖ ABSENT TO F ≕ NUMEROUS (I		FEW TO SEVERAL (Lee)		
MM. BASAL HAIR LENG			er fan 'e k art jin het e			
The second secon	and the state of t		DOAT WELCHT (seek	And the second s		
N. W. S. & W.			ROAT WEIGHT (each	logica de la companio de la companio La companio de la co		
1 9 0 % GROAT PROTEIL	your parameter,	6 6 %	GROAT OIL			
14. INSECTS: (0 = NOT TESTED, 1 = S	USCEPTIBLE, 2 = RESISTANT)					
	BLUEGRASS BILLBUG 0 GR	AIN BUG (<u>C. Sa</u>	vi) O NEMATO	DDE (Τγρе <u>)</u>		
GREEN BUG (Biotype)	<u></u>	HER (Separify)	··			
		nen (specify)				
15. DISEASE: (0 = NOT TESTED, 1 = 5	SUSCEPTIBLE, 2 = RESISTANT)			N		
0 HALO BLIGHT 0	POWDERY MILDEW 0	SEPTORIA LEA	AF BLOTCH 0	SOIL-BORNE MOSIAC		
0 HELMINTHOSPORIUM 1	YELLOW DWARF VIRUS 0	VICTORIA BLI	GHT	OTHER (Specify)		
SPECIFY RACES TESTED:	RACES SUSCEPTIBLE	N. C.		ACES RESISTANT		
CROWN RUST	MACLS SUSCEPTIBLE					
STEM RUST	The Control of the Co		239, 240, 326; hetero for 202			
CONTROL OF THE CONTRO	the equipment and the contract of the second		has genes Pg	1, 3, 4 & 6/16/180		
COVERED SMUT		<u> </u>	Minnesota composite MR Wisconsin			
LOOSE SMUT		name gradeny decembers proposanie i na maj naj njeho	MR Wisconsin " "Lodi"strain			
16. INDICATE VARIETY YOU BELIEV	E MOST CLOSELY TO RESEMBLE TO	HAT SUBMITTE	D:			
CHARACTER	VARIETY	CHARACTE	R	VARIETY		
PLANT TILLERING	?, Portage	EAF COLO	R	Burnett		
LEAF SIZE	?, Portage	LEAF CARRIAGE		?, Portage		
SEED COLOR	lighter than Burnett	SEED SHAPI	Burnett 5			
TO COMMENTS:	with a Constitution of the	guid for a last tradegales Norwalayana (N. Brawa, et al. 1996).	and a superior of the superior	The state of the s		
FORM GR-470-35 (REVERSE)		-		ecid 2/15/80 4:00		
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FORM GR-470-35 (REVERSE)

OATS

'BENSON'

13D. Exhibit D. Additional Description of 'Benson'

'Benson' is a spring oat, Avena sativa L.

'Benson' is approximately equal to Lyon in heading date, but somewhat shorter, ca 6 cm. At heading the plant color is light green and usually the plants produce a rather petite upper canopy.

The hull of Benson is cream colored and fluoresces under ultraviolet light. Spikelet separation is by semiabscission and the rachilla is long and narrow. The leaves are somewhat droopy. A ligule is present. The stems are medium sized, hairless at the upper nodes, and yellow in color when mature. The panicle is small and narrow and equilateral in shape with spreading branches. At maturity the glumes are white.

Performance data from the last three years of state-wide testing are given in the enclosed tables (from page 17 of the 1980 Edition of Variety Trials of Farm Crops, Misc. Report 24, Agricultural Experiment Station, University of Minnesota).



Minnesota's three newest oat varieties and their breeder, agronomist D. D. Stuthman.

8000055

Table 19. Yield of oat varieties in bushels per acre 1977-79

Variety	 	semoun		Waseca	L.a	mberton ¹		Morris ²	Crookston ¹	Grand Rapids	Stephen	Average
Noble Lancer ² Benson Lyon		84 91 92 87		94 105 99 90		88 86 91 92	1 1	93 95 105 102	104 106 107 110	69 60 66 59	109 115 ³ 114 ² 114	92 94 96 93
Moore Otana ² Lodi Marathon		98 58 90 99		89 76 80 96		95 64 75 94	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	105 77 98 106	129 138 116 117	73 66 62 63	130 142 113 125 ³	103 91 91 100
LSD 5%		. 7	2.1	9		8		8	10	8	8	3

¹1977-78. ²1978-79. ³1979.

Table 20. Characteristics of oat varieties, 1977-79

		ics of oat valleti		Test			Protein/	Reactions to disease ³		
Variety	Heading (June)	Height (inches)	Lodging (score) ¹	weight/bushel (pounds)	Groat (percent)	Protein groat	percent ² seed	acre (pounds)	Crown rust	Smut
Noble	22	34	2.0	38	75	17.0 12.6	355	S	R	
Lancer	23	35	1.8	38	77	18.8 14.6	439	S	S	
Benson	23	38	2.9	37	74	18.0 13.3	398	MR	R	
Lyon	25	42	2.6	38	75	18.0 13.5	394	MR	R	
Moore	27	40	2.2	38	75	16.3	12.2	387	MR	MR
Otana	27	41	3.5	33	70	15.7	10.9	292	MR-MS	S
Lodi	28	44	2.5	36	72	17.5	12.7	360	S	S
Marathor	1 29	41	2.2	37	74	19.0	14.1	432	R	S

 $^{^{1}1 = \}text{erect}, 5 = \text{flat}.$ $^{2}8$

²8 percent moisture.

³R = resistant, MR = moderately resistant, MS = moderately susceptible, and S = susceptible.



UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL MARKETING SERVICE

Livestock. Poultry. Grain & Seed Division National Agricultural Library Beltsville, Maryland 20705

PLANT VARIETY PROTECTION OFFICE

Gentlemen:

Subject: Application No. 8000055

Variety and Kind - 'Benson' Oat

As provided in section 83(a) of the Plant Variety Protection Act, 7 U.S.C. 2321, we request that the Certificate on the above variety be issued with a notation on each Certificate that the right to exclude others from selling, offering for sale, reproducing, importing or exporting the variety covered by this Certificate, or using it in producing a hybrid or different variety is waived.

It has been agreed that the certificate should be issued in the name(s) of:

Minnesota agricultural Epperment Chatin

(Signature



UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL MARKETING SERVICE LIVESTOCK, POULTRY, GRAIN & SEED DIVISION NATIONAL AGRICULTURAL LIBRARY BUILDING BELTSVILLE, MARYLAND 20705

August 11, 1982

Subject: Seed Sample of Protected Variety

Certificate No.

8000055

Kind and Variety - Oats, 'Benson'

Breeder -

Minnesota Agricultural Experiment Station

To: National Seed Storage Laboratory

> Fort Collins, CO 80521

Attached is the above-identified sample and an Objective Description of Variety form in accordance with our Memorandum of Understanding and as agreed upon during my visit with Dr. Louis Bass on June 12, 1972.

One copy of this duplicate form showing the result of your germination test on 100 seeds of pure seed of this sample should be returned to this Office. Return of the duplicate form will serve as acknowledgement of receipt of the sample.

Germination:

Date:

Sincerely,

Bernard M. Leese

Commissioner ·

Plant Variety Protection Office

Attachment

In duplicate